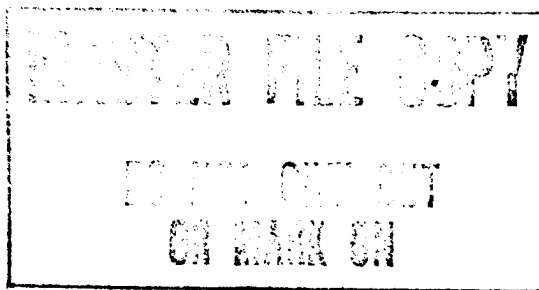




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North Korea: Jet Fighter Production

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An Intelligence Assessment

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*EA 84-10084
April 1984*

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North Korea: Jet Fighter Production

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An Intelligence Assessment

This paper was prepared by
of East Asian Analysis, and

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Comments and queries are
welcome and may be directed to the Chief, Northeast
Asia Division, OEA,

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**North Korea:
Jet Fighter Production**

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Key Judgments*Information available
as of 30 March 1984
was used in this report.*

We expect North Korea to begin assembling a few jet fighters by the end of 1985. The North Koreans are building plants for the production and assembly of fixed-wing aircraft and jet engines at Panghyon, some 100 kilometers north of P'yongyang.

Construction is proceeding rapidly, and we expect the plants to be ready for series production of fighters by 1987. At first, aircraft will likely be assembled primarily from foreign-supplied parts. The North should become largely self-sufficient around 1990.

We believe that China is aiding the project, and that the North will assemble and eventually produce the F-7, the Chinese version of the Soviet-designed MIG-21:

- Despite repeated requests from P'yongyang for modern aircraft, Moscow has not provided any fighters since 1974. Beijing has been the sole supplier of jet fighters to North Korea since that time.
- The Chinese provided F-7s to the North in early 1982.

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- P'yongyang needs more modern fighters to replace the aging MIG-15s and MIG-17s in its inventory. The F-7 appears to be the best aircraft available and would provide a good match for the F-5E/Fs now being assembled in South Korea.

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North Korea's economic problems or any technological limitations are not likely to prohibit the manufacture of jet fighters. The costs may not be severe; foreign assistance may be available in the form of grant aid.

We do not believe P'yongyang's production of jet fighters will cause a shift in the air balance in Korea during the rest of the 1980s:

- P'yongyang's numerical lead has been decreasing, and South Korea now has a significant quality advantage over the North in fighter aircraft. Seoul plans to acquire nearly 100 more fighters by 1989.
- Given the complexities of jet fighter production, we believe that North Korea would be fortunate to achieve a rate of about 40 per year in series manufacture. At this rate of production, Seoul would be able to maintain an edge equal to its current advantage through this decade.

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Gains anticipated by Seoul under its aircraft improvement program, however, would be offset by the F-7s acquired by the North through domestic production. We would expect the South then to accelerate its efforts to acquire modern aircraft.

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North Korea: Jet Fighter Production

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Production Facilities

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[redacted] a complex for the construction of military aircraft is being built at Panghyon, in North P'yongan Province, the site of North Korea's major fighter repair base [redacted]. Plants for the fabrication or assembly of fixed-wing aircraft, jet engines, and helicopters¹ are all under construction. The airframe plant is located in a valley east of Panghyon, and the jet engine factory is west of the town, adjacent to the airfield. New worker housing is near all the production facilities, and roads throughout the complex are being improved.²

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Construction at the jet engine plant began in early 1981 [redacted]

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[redacted] Building began at the fixed-wing airframe plant in August 1982. It is connected by road to the engine plant and the airfield, and we expect that a rail link will be built as well. Work at both sites is proceeding at a rapid rate, and they could be ready for limited production or assembly in 1985. If construction continues at the current rapid pace, both plants probably will be fully operational in 1987.

Although the jet engine and airframe facilities are rather small compared with military aircraft plants in more developed countries, they are designed for production, not testing and repair. Engine test cells and fabrication buildings already exist at the repair base, and that facility is large enough to continue the major maintenance of fighters that has been going on at Panghyon for years.

Chinese Assistance. We believe that China is assisting the North's incipient jet fighter industry:

- China has been the sole supplier of jet fighters to the North since 1974, with the first F-7s delivered to North Korea in early 1982.

¹ The helicopter production plant is in an adjacent valley east of the fixed-wing facility. It could be in limited use by this summer.

[redacted]

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[redacted]

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Support for the production of jet fighters would be a major change in Soviet policy toward the North. Despite repeated requests from P'yongyang in recent years for modern aircraft, Moscow has not responded favorably. The last Soviet fighters were supplied in 1974. Moscow has provided communications equipment and some assistance in ground arms manufacture since then.

Type of Aircraft. We believe that North Korea will produce copies of the supersonic F-7 fighter, the Chinese version of the Soviet-designed MIG-21 [redacted]

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[redacted]

We doubt that North Korea would want to produce an aircraft less advanced than the F-7, which is comparable in many respects to the F-5-E/F models, which the South is producing with US assistance. North Korea needs more modern fighters to replace the 269 aging MIG-15s and MIG-17s still in its operational inventory. The comparative effectiveness of these aircraft is declining as Seoul adds modern fighters.

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China also supplied P'yongyang with 170 F-6s between 1972 and 1978. More of these less capable aircraft probably were available if the North wanted them. The F-6s are still flown back to China for overhaul, but North Korea has a work force at Panghyon skilled in major maintenance on the MIG-21—nearly identical to the F-7.

Economic and Technological Limitations

Although an aircraft industry will tax the North Korean economy, we do not believe the costs will appear excessive to P'yongyang in terms of its willingness to sacrifice growth in the civil sector to serve the

needs of the military. The expansion of North Korea's defense industries since 1970 has been striking for a developing nation of fewer than 20 million people.

If China is the principal source of assistance, Beijing may be offering grant aid, as it usually does. The Chinese may believe it more economical to assist the North in establishing production facilities rather than to provide aircraft, which Beijing can sell abroad. China knows North Korea is not a good cash customer.

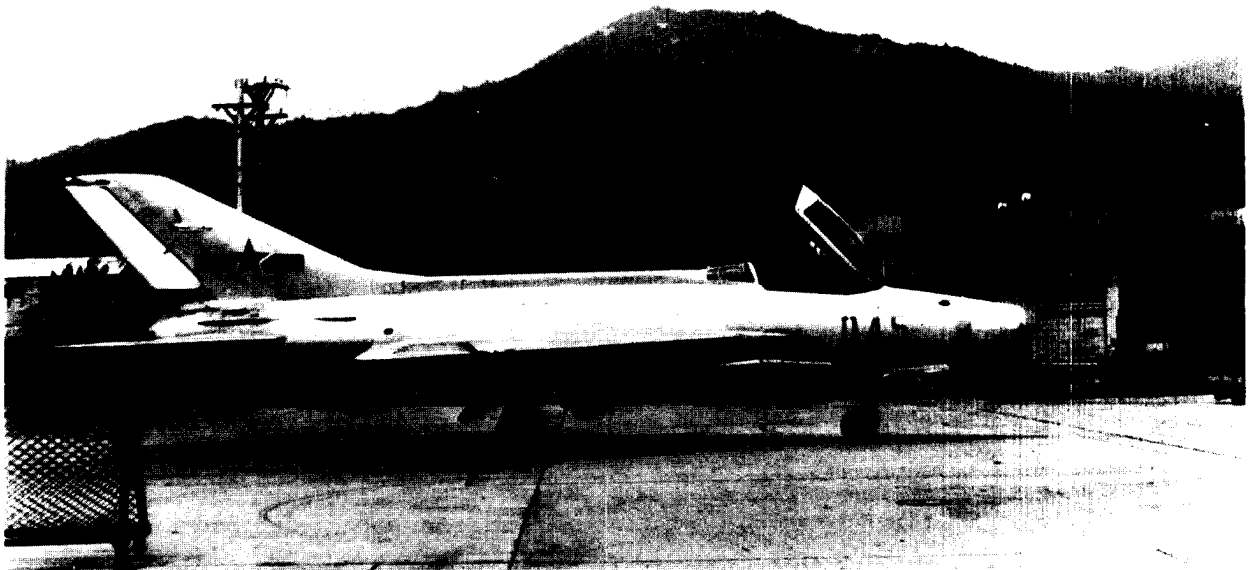


Figure 5. Chinese-produced F-7 fighter

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A domestic aluminum industry is being developed on about the same schedule as the aircraft complex. An aluminum plant—built with Soviet aid—is now in limited production, and an alumina plant, which will provide raw material, is now in the late stages of construction. We believe these factories are being built to support the aircraft industry as well as produce goods for the civil sector.

Technology should not be a major problem in the manufacture of an aircraft such as the F-7. P'yongyang produces most specialty steels and is capable of hard-chrome plating. Metalworking is fairly advanced in North Korea; the North already produces tank turrets, artillery barrels, turbines for hydroelectric plants, locomotive engines, and some basic machine tools. Precision machine tools have been imported from Western countries in the past, and China might supply some of the forms and dies necessary for aircraft manufacture. Complete domestic manufacture of airframes and engines, however, is not likely until about 1990, and P'yongyang will import many aircraft electronics for years to come.

P'yongyang has experience in some facets of aerospace production and assembly in addition to the skills gained from years of jet aircraft repair. Examination of a North Korean Air Force MIG-15 has shown that P'yongyang has been manufacturing some small aircraft parts since at least 1970.

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Impact on the Air Balance

Current Forces. North Korea's numerical lead in fighters has been shrinking steadily since the mid-1970s as P'yongyang's imports have not kept pace with deliveries to the South. Moreover, South Korea has achieved a significant edge in quality that was only partially eroded by the delivery of 40 Chinese F-7s in early 1982 (see table). South Korea's F-4s are superior to the North's best fighters in air-to-air combat, and the F-5E/Fs are a near-even match with P'yongyang's F-7s and MIG-21s. The South's F-4s are the only Korean fighters with a true all-weather

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Fighter Inventories in North and South Korea, March 1984 ^a

Quality of Aircraft	Number	Type	Armament
Firstline			
South	215	150 F-5E/F	Guns, infrared missiles
		65 F-4D/E	Guns, infrared and radar-homing missiles
North	163	MIG-21/F-7	Guns, infrared missiles
Second line			
South	103	F-5A/B	Guns, infrared missiles
North	170	F-6	Guns, infrared missiles on some
Obsolescent			
South	59	F-86	Guns, infrared missiles
North	269	134 MIG-17	Guns, infrared missiles
		135 MIG-15	Guns Only
Total			
South	377		
North	602		

capability, because they are armed with radar-homing missiles. The MIG-21s and F-7s in P'yongyang's inventory perform better at supersonic speeds and high altitude than the F-5E/Fs, but at typical combat speeds the late-model F-5s are about equal in performance. Seoul's older F-5A/B fighters have infrared missiles; only a few of the North's F-6s are similarly armed.

Moreover, the US-supplied missiles in the South's inventory probably will be more effective in combat than the missiles that the Chinese and Soviets provide to North Korea. North Korea's numerical edge comes from the large number of 1950s-vintage MIG-15s and MIG-17s still in its force, but these aircraft are no match for the South's more modern fighters. Superior training and tactics add to the South's qualitative advantage.

Force Projections. Predicting the size and composition of the North's fighter force through the end of the 1980s is difficult because at this time we are unable to estimate production rates at the unfinished facilities accurately.

Considering the complexities involved in the manufacture of jet aircraft, a more likely production rate would be about 40 fighters per year when full series

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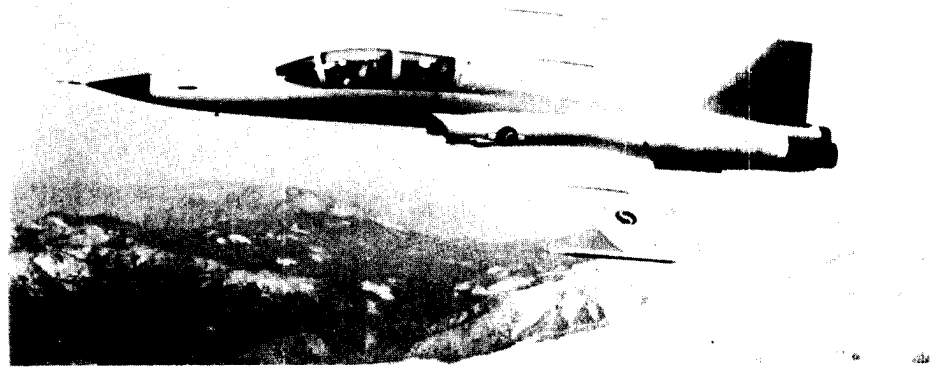
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Figure 6. First F-5F assembled
in South Korea

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production is under way. P'yongyang's lack of experience in any type of aircraft production could compound the difficulties most nations encounter when they move into jet fighter manufacture. If the North achieved a rate of 40 per year, it would be doing well compared with other small nations engaged in aircraft manufacture or assembly. Facilities and production systems differ markedly among countries, but South Korea and Taiwan, for example, produce or assemble less than 30 aircraft per year.

South Korea is assembling F-5E/Fs with US assistance and expects to turn out 16 this year (see figure 6). It will add 44 more to the force before production terminates at the end of 1986. Seoul plans to use the new F-5E/Fs to replace its vintage F-86s. South Korea also ordered 36 F-16s for delivery between 1986 and 1989; these are scheduled to replace an equal number of older model F-5A/Bs.

If the South acquires fighters as planned, and P'yongyang enters series production of the F-7 in 1987, we would expect both forces to remain at about their current size through the rest of this decade. P'yongyang probably will retain its F-6s because all have been imported since 1972 as newly manufactured aircraft. The North would also keep its MIG-17s, but probably replace most of its MIG-15s with newly produced or assembled F-7s.

With additional Chinese assistance, North Korea could supplement initial F-7 production with fighters assembled from imported parts at the Panghyon

repair base. This would speed up the pace of acquisition, while giving the appearance of high production in keeping with demands from P'yongyang for accelerated "war preparations." The North's leadership continually exhorts its work force to increase production using the "war preparations" theme.

In either case, we do not expect to see a shift in the air balance through the 1980s. Seoul probably will maintain a quality edge roughly equal to its current advantage. The planned influx of firstline aircraft (F-16s and F-5E/Fs) would counter the North's acquisition of F-7 fighters. Gains projected under Seoul's aircraft improvement program, however, would be offset by the F-7s acquired by the North through domestic production.

As the North's Air Force increases its quality with F-7s from the domestic production facilities, we expect Seoul will accelerate its efforts to acquire modern aircraft. South Korea might seek to increase its order for F-16s, or attempt to acquire F-15s or F-18s, although these options would be prohibitively expensive. For the near term, Seoul might consider a coproduction effort for the F-20, using much of the machinery and facilities now used in the F-5E/F program.



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